

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
15 February 2001 (15.02.2001)

PCT

(10) International Publication Number  
**WO 01/11333 A3**

(51) International Patent Classification<sup>7</sup>: G01N 33/53,  
C12Q 1/68, G01N 35/00

Court, San Diego, CA 92117-1549 (US). OKUN, Alex;  
5310 Sunglow Court, San Diego, CA 92117-1549 (US).

(21) International Application Number: PCT/US00/21339

(74) Agent: HUNT, Dale, C.; 16th floor, 620 Newport Center  
Drive, Newport Beach, CA 92660 (US).

(22) International Filing Date: 4 August 2000 (04.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
09/370,786 5 August 1999 (05.08.1999) US

(71) Applicant: AXIOM BIOTECHNOLOGIES, INC.  
[US/US]; 3550 General Atomics Court, San Diego, CA  
92121-1194 (US).

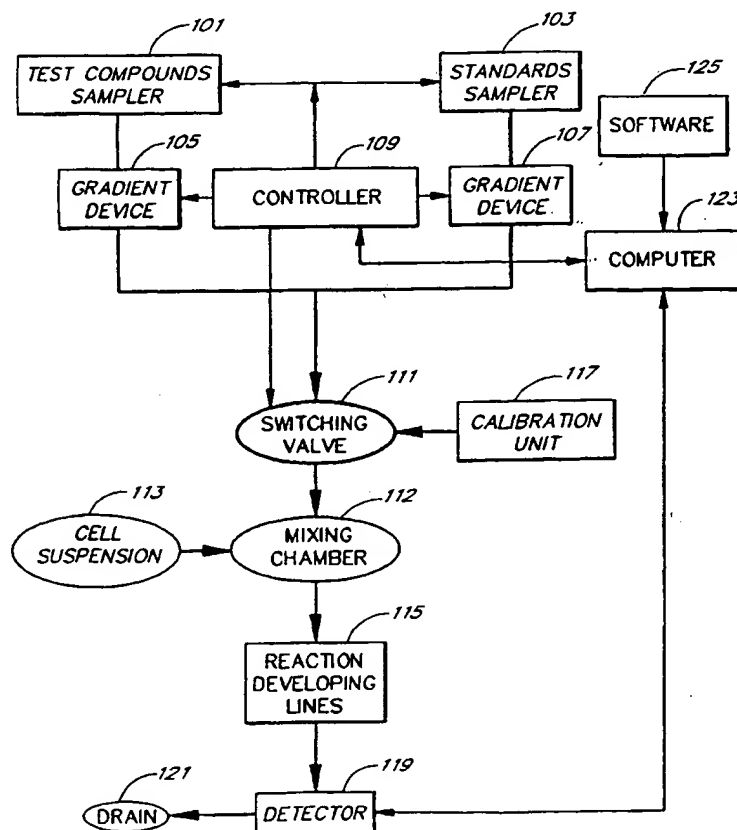
(81) Designated States (*national*): AE, AG, AL, AM, AT, AT  
(utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA,  
CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility  
model), DK, DK (utility model), DM, DZ, EE, EE (utility  
model), ES, FI, FI (utility model), GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR (utility  
model), KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD,  
SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT,  
TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(72) Inventors: RANSOM, John; 1707 Willowhaven Road,  
Encinitas, CA 92024 (US). OKUN, Ilya; 5310 Sunglow

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian

[Continued on next page]

(54) Title: APPARATUS FOR REAL-TIME MEASUREMENT OF CELLULAR RESPONSE



(57) Abstract: An apparatus and method for real-time measurement of a cellular response of a test compound or series of test compounds (303) on a flowing suspension of cells (349), in which a homogeneous suspension of each member of a series of cell types (349) is combined with a concentration of a test compound (303), directed through a detection zone (355), and a cellular response of the living cells is measured in real time as the cells in the test mixture are flowing through the detection zone (355). The apparatus may be used in automated screening of libraries of compounds, and is capable of real-time variation of concentrations of test and standard compounds and generation of dose/response profiles within a short time span.



patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:  
30 August 2001

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/21339

A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 G01N33/53 C12Q1/68 G01N35/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 545 284 A (CANON KK) 9 June 1993 (1993-06-09) column 9, line 50 -column 18, line 20; examples 10,15,21	1-65
X	US 5 834 196 A (REUTELINGSPERGER CHRISTIAAN PE) 10 November 1998 (1998-11-10) claims 1-39	1-25, 40, 41
X	EP 0 384 740 A (DANA FARBER CANCER INST INC) 29 August 1990 (1990-08-29) examples 1-5	1-25, 34-41
A	DE 197 38 566 A (BASF AG ;KARLSRUHE FORSCHZENT (DE)) 18 March 1999 (1999-03-18) claim 9; figure 1	42-65

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

7 February 2001

Date of mailing of the international search report

16/02/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Hart-Davis, J

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/21339

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 670 113 A (AKONG MICHAEL ANTHONY ET AL) 23 September 1997 (1997-09-23) claim 1; examples 1-4 ---	1,2,9,10
A	US 5 633 168 A (GLASSCOCK LARRY M ET AL) 27 May 1997 (1997-05-27) claims 1,13; figure 1 ---	42-65
A	WO 99 12041 A (UNIV OKLAHOMA STATE) 11 March 1999 (1999-03-11) claims 1-4 ---	1,2,9,10
P,A	WO 00 20873 A (UNIV NEW MEXICO) 13 April 2000 (2000-04-13) cited in the application examples 1,2 -----	42-65

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/21339

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0545284 A	09-06-1993	AT 148794 T DE 69217331 D DE 69217331 T US 5370842 A JP 2832117 B JP 5240872 A	15-02-1997 20-03-1997 10-07-1997 06-12-1994 02-12-1998 21-09-1993
US 5834196 A	10-11-1998	AT 160875 T AU 689248 B AU 2114195 A CA 2185535 A DE 69501161 D DE 69501161 T DK 755516 T EP 0755516 A ES 2112057 T JP 2824155 B JP 9505894 T WO 9527903 A NO 964308 A NZ 283171 A	15-12-1997 26-03-1998 30-10-1995 19-10-1995 15-01-1998 19-03-1998 10-08-1998 29-01-1997 16-03-1998 11-11-1998 10-06-1997 19-10-1995 11-12-1996 26-02-1998
EP 0384740 A	29-08-1990	US 4987084 A CA 2010207 A JP 2284062 A	22-01-1991 21-08-1990 21-11-1990
DE 19738566 A	18-03-1999	DE 29809591 U WO 9912017 A EP 1009999 A	24-09-1998 11-03-1999 21-06-2000
US 5670113 A	23-09-1997	US 6057114 A AU 3416893 A CA 2121506 A EP 0617791 A JP 3071464 B JP 7505710 T WO 9313423 A US 6127133 A	02-05-2000 28-07-1993 08-07-1993 05-10-1994 31-07-2000 22-06-1995 08-07-1993 03-10-2000
US 5633168 A	27-05-1997	NONE	
WO 9912041 A	11-03-1999	US 6054315 A US 5948628 A AU 9301998 A	25-04-2000 07-09-1999 22-03-1999
WO 0020873 A	13-04-2000	AU 6284799 A	26-04-2000